

AMENDMENTS TO THE CLAIMS

The listing of claims below replaces all prior versions of claims in the application.

1. (Currently Amended) A spiral linear motor, comprising:

a rotator including a center shaft having an axis and a spiral-shaped portion protruding in the radial direction, provided on the outer circumference of the center shaft; and

a stator comprising hollow magnetic poles forming a center space having a spiral-shaped groove with the same pitch as the rotator,

wherein the center shaft of the rotator is within the hollow magnetic poles forming a center space of the stator;

the side face of the spiral-shaped portion of the rotator in the axial direction and the side face of the spiral-shaped groove of the stator in the axial direction are opposed to each other in a direction parallel with the axis of the center shaft;

the spiral-shaped portion is rotatable in a spiral shape within the spiral-shaped groove of the hollow magnetic poles forming a center space; and

the rotator moves linearly in the axial direction while rotating in a spiral shape with respect to the stator.

2. (Previously Presented) The spiral linear motor according to claim 1, wherein the rotator has a permanent magnet on the spiral side face of the spiral-shaped portion.

3. (Original) The spiral linear motor according to claim 1, wherein the stator has windings of two phases that are mutually displaced through 90 degrees on both spiral-shaped side faces of the mid-air gap magnetic pole wound in the axial direction of the stator.

4. (Previously Presented) The spiral linear motor according to claim 1, wherein
the stator has a slot on both spiral-shaped side faces of the mid-air magnetic pole;
and
the winding is wound in the slot.